REMARKS

This Amendment After Final Rejection is submitted in response to the outstanding final Office Action, dated May 17, 2010. Claims 1 through 30 are presently pending in the above-identified patent application. In this response, Applicants propose to amend claims 1, 15, 27, and 30. No additional fee is due.

This amendment is submitted pursuant to 37 CFR §1.116 and should be entered. The Amendment places all of the pending claims, i.e., claims 1 through 30, in a form that is believed allowable, and, in any event, in a better form for appeal. In particular, the independent claims have been amended to correct the antecedent basis of the term "subcarrier subgroup." It is believed that examination of the pending claims as amended, which are consistent with the previous record herein, will not place any substantial burden on the Examiner.

In the Office Action, the Examiner rejected claims 1, 4, 8-10, 12, 13, 15, 18, 22, 23, and 25-30 under 35 U.S.C. §103(a) as being unpatentable over Perahia et al. (United States Patent Number 7,352,688) in view of Ma et al. (United States Publication Number 2007/0064586; hereinafter Ma '586), and further in view of Ma et al. (United States Publication Number 2003/0072255; hereinafter Ma '255), rejected claims 2, 5, 6, 11, 16, 19, 20, and 24 under 35 U.S.C. §103(a) as being unpatentable over Perahia et al. in view of Ma '586 and Ma '255, and further in view of Shattil (United States Patent Publication Number 2004/0141548), rejected claims 3, 7, 17, and 21 under 35 U.S.C. §103(a) as being unpatentable over Perahia et al. in view of Ma '586 and Ma '255, and further in view of Zhuang et al. (United States Patent Publication Number 2003/0123381), and rejected claim 14 under 35 U.S.C. §103(a) as being unpatentable over Perahia et al. in view of Ma '586 and Ma '255, and further in view of Jia et al. (United States Patent Number 7,103,325).

The Examiner is thanked for the courtesy of a telephonic interview on June 10, 2010 where the prior art rejection was discussed. The Examiner agreed that the cited prior art docs not show subcarrier subgroups having adjacent subcarriers. The Examiner asserted that the term "subcarrier subgroup" in the last line of each independent claim does not have proper antecedent basis. No final agreement was reached.

Independent Claims 1, 15, 27 and 30

Independent claims 1, 15, 27 and 30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Perahia et al. in view of Ma '586 and Ma '255. Regarding claim 1, the

Examiner acknowledges that Perahia may have failed to disclose each of said long training symbols to be transmitted on each of said N transmit antennas having two or more portions, each of said N transmit antennas having a set of a plurality of subcarriers, wherein each of said sets of said plurality of subcarriers are grouped into a plurality of subcarrier subgroups, wherein each subcarrier subgroup comprises two or more adjacent subcarriers and wherein each portion of each long training symbol is transmitted on a different transmit antenna in a given time interval using a subcarrier subgroup. The Examiner asserts, however, that Ma '586 discloses transmitting a symbol (e.g. header symbol) in which subcarriers of a header OFDM symbol are divided into a set of subcarriers of each plurality of antennas, with each antenna transmitting the header symbol only on the respective set of subcarriers (i.e., each antenna has a set of subcarriers different from others) (paragraphs [0017]-[0018]). The Examiner further asserts that, contrary to Applicant's assertion, non-contiguous does not mean non-adjacent, but rather non-repetitive. The Examiner asserts that Ma '586 discloses that the subcarriers are divided into non-contiguous sets for each antenna (presumably using the Examiner's alleged definition of "non-contiguous"), and acknowledges that Ma '586 does not specifically disclose the non-contiguous set as having adjacent subcarriers. The Examiner asserts that assigning adjacent subcarriers to an antenna is well known in the art, as allegedly evidenced by Ma '255 (paragraphs [0126]-[0128]) and that therefore it would have been obvious to a person of ordinary skill in the art to use adjacent subcarriers to transmit the portion of (a) long training symbol.

Contrary to the Examiner's assertion, the word "contiguous" is defined as "adjacent" (see, dictionary.com; second definition) and that the word "non-contiguous" therefore means "not adjacent." Applicants find *no* definition of the word "non-contiguous" that means "non-repetitive" and request that the Examiner provide evidence of this definition.

Also, as previously noted and acknowledged by the Examiner, Ma teaches that "sub-carriers of a header OFDM symbol are divided into a ***non-contiguous*** *set of sub-carriers* for each of a plurality of antennas." (Paragraph [0030]; emphasis added; see, also, FIG. 5 and paragraphs [0031], [0034], [0090], and [0116]-[0117].) Based on the well known dictionary.com definition of the term "non-contiguous", Ma does not disclose or suggest *wherein each subcarrier subgroup comprises two or more* ***adjacent*** *subcarriers.*

Furthermore, contrary to the Examiner's assertion, Ma '255 does *not* assign adjacent subcarriers to one antenna; as disclosed in paragraphs [0126]-[0128] and associated

FIG. 6; Ma teaches that every other subcarrier is assigned to antenna 21 and the remaining subcarriers are assigned to antenna 23. Independent claims 1 and 15 require transmitting a legacy preamble having at least one long training symbol, and at least one additional long training symbol on each of said N transmit antennas, each of said long training symbols having a plurality of subcarriers, wherein said subcarriers are grouped into a plurality of subcarrier subgroups, and *wherein each subcarrier subgroup comprises two or more* ***adjacent*** *subcarriers* and is transmitted on a different transmit antenna in a given time interval. Independent claims 27 and 30 require receiving a legacy preamble having at least one long training symbol and an indication of a duration of a transmission of said data, and at least one additional long training symbols on each of said N transmit antennas, each of said long training symbols having a plurality of subcarriers, wherein said subcarriers are grouped into a plurality of subcarrier subgroups, and *wherein each subcarrier subgroup comprises two or more* ***adjacent*** *subcarriers* and is transmitted on a different transmit antenna in a given time interval.

Thus, Perahia et al., Ma '586 and Ma '255, alone or in combination, do not disclose or suggest transmitting a legacy preamble having at least one long training symbol, and at least one additional long training symbol on each of said N transmit antennas, each of said long training symbols having a plurality of subcarriers, wherein said subcarriers are grouped into a plurality of subcarrier subgroups, and wherein each subcarrier subgroup comprises two or more adjacent subcarriers and is transmitted on a different transmit antenna in a given time interval, as required by independent claims 1 and 15, and do not disclose or suggest receiving a legacy preamble having at least one long training symbol and an indication of a duration of a transmission of said data, and at least one additional long training symbols on each of said N transmit antennas, each of said long training symbols having a plurality of subcarriers, wherein said subcarriers are grouped into a plurality of subcarrier subgroups, and wherein each subcarrier subgroup comprises two or more adjacent subcarriers and is transmitted on a different transmit antenna in a given time interval, as required by independent claims 27 and 30.

Dependent Claims 2-14, 16-26 and 28-29

Claims 2-14, 16-26, and 28-29 are dependent on claims 1, 15, and 27, respectively, and are therefore patentably distinguished over Perahia et al., Ma '586, Ma '255, Shattil, Zhuang et al., and Jia et al., alone or in any combination, because of their dependency from independent claims 1, 15, and 27 for the reasons set forth above, as well as other elements

these claims add in combination to their base claim.

Conclusion

All of the pending claims following entry of the amendments, i.e., claims 1-30, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,

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Kevin M. Mason
Attorney for Applicants
Reg. No. 36,597
Ryan, Mason & Lewis, LLP
1300 Post Road, Suite 205
Fairfield, CT 06824
(203) 255-6560